

▲ **Wilderness waters in Dundas Bay** at Glacier Bay National Park and Preserve are among those that will be closed to commercial fishing as a result of The Wilderness Act, a 1997 Ninth Circuit Court of Appeals decision, and federal legislation passed in 1998.

A SPECTRUM OF CHALLENGES

The condition of natural systems is not on the minds of most park visitors. Intent on experiencing the special character of the parks, they see instead the alluring scenery and awe-inspiring natural phenomena that are commonly believed to indicate healthy ecosystems. Yet behind this veneer is a multitude of deleterious influences that constantly wear down the integrity of these systems. As events in 1998 suggest, the spectrum of challenges to natural resource preservation has never been broader or more complex. To preserve natural resources, the National Park Service requires the professional insights of technical specialists and research partners trained in a variety of disciplines and armed with an understanding of the many factors that drive natural systems. Although more information is needed on the condition of resources and the dynamics of ecosystems, the following stories demonstrate that the National Park Service is meeting many preservation challenges through the acquisition and application of scientific information and technical expertise.

Consumptive Use

► COMMERCIAL FISHING ISSUES IN GLACIER BAY RESOLVED THROUGH LEGISLATION

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Recent legislation crafted to phase out commercial fishing from the heart of Glacier Bay National Park (Alaska) will result in one of the largest protected marine ecosystems in the nation. This landmark action comes during the “Year of the Ocean,” at a time when marine scientists are clamoring for protection of the world’s oceans through establishment of marine protected areas. The elimination of commercial fishing in Glacier Bay will present an unparalleled opportunity for scientists and managers to increase their understanding of marine ecosystems released from commercial harvest.

Commercial fishing has occurred in the Glacier Bay area since before the turn of the century. Despite regulatory and statutory prohibitions as early as 1966, commercial fishing has continued throughout most of the park’s 601,600 acres of marine waters. Disputes over control of the park’s marine waters, economic importance of the fishery, political clout

of the commercial fishing industry, and the lack of an equitable solution have thwarted efforts to resolve this issue.

The future of commercial fishing in Glacier Bay National Park and Preserve was finally decided by federal legislation after years of consideration and contentious debate. The new legislation, which is included within the FY 1999 Omnibus Appropriations Act, reflects much work and many years of public discussion and information gathering. The Glacier Bay provision responds to public comments received by the National Park Service that oppose commercial fishing in park waters, and advances the park’s fundamental purpose of natural resource preservation. Equally important, it responds to issues of equity raised by longtime fishers and the State of Alaska.

The Appropriations Act provision will help to protect park resources by immediately closing all five wilderness waters, Geickie Inlet, and the upper east and west arms of Glacier Bay to commercial fishing activities. The act will also immediately prohibit Dungeness crab, king crab, and groundfish fisheries within all parts of the bay, and establish a phaseout of halibut, salmon, and Tanner crab fisheries. Only fishers meeting historical participation criteria will be allowed to continue fishing for the remainder of their



Glacier Bay National Park and Preserve, Rock Perch

▲ **Commercial harvest of Pacific halibut** is one of the fishing activities affected by immediate closures in some wilderness and nonwilderness waters and an eventual phaseout in Glacier Bay proper. Regulations implementing the 1998 legislation are expected to be completed in 1999.

Commercial Fishing Within Glacier Bay National Park

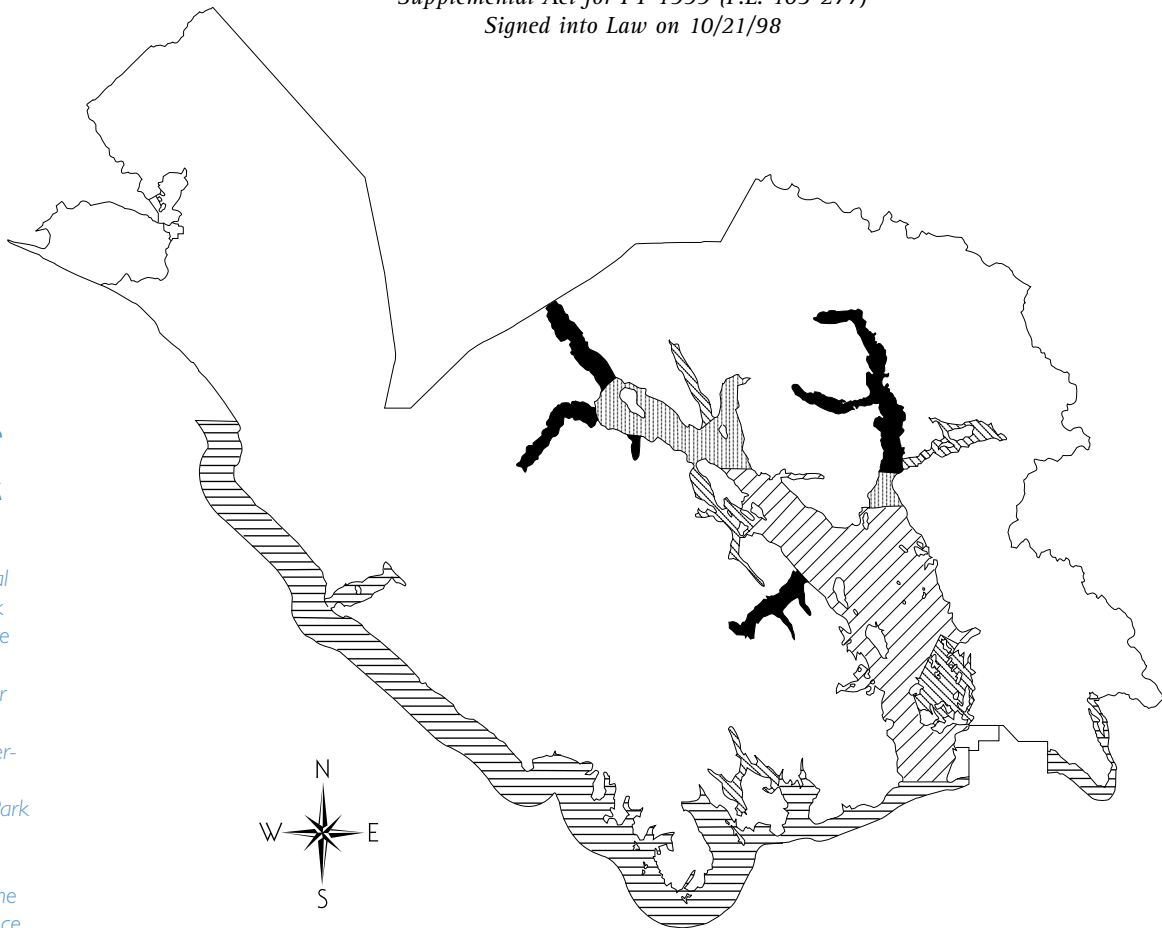
*Effects of the Omnibus Consolidated and Emergency
Supplemental Act for FY 1999 (P.L. 105-277)
Signed into Law on 10/21/98*

Award-Winner Profile SUPERINTENDENT HONORED FOR PARK PROTECTION

In April 1998 the National Park Service named Mark Woods the recipient of the Director's Award for Superintendent of the Year for Natural Resource Stewardship. Mark is superintendent of Cumberland Gap National Historical Park (Kentucky, Virginia, Tennessee) and led the 1997 challenge against the State of Kentucky's issuance of a surface coal-mining permit outside Cumberland Gap. Although state proceedings continue, the challenge to the state permit decision set a precedent for the National Park Service in protecting park resources and values from coal mining outside park boundaries. This precedent highlights the need for park managers to be proactive with respect to protecting parks from external development.



▲
Mark Woods



*Gulf of Alaska
(Open to Commercial Fisheries)*

Plot date: 18 November 1998

Total Acres of Park Marine Waters: Approx. 601,600

	Areas Open to Existing Commercial Fisheries (Cooperative State/Federal Management) Approx. 271,080 Acres
	Area in Glacier Bay Proper Open for Qualifying Fisher's Lifetimes for Commercial Tanner Crab, Halibut, and Salmon Fisheries Approx. 170,800 Acres
	Areas Open Only to Winter Season Commercial King Salmon Troll Fishery for Grandfathered Individuals Approx. 48,490 Acres
	Nonwilderness Areas Closed to Commercial Fisheries Approx. 57,960 Acres
	Wilderness Areas Closed to Commercial Fisheries Approx. 53,270 Acres

lifetime. When these fishers retire, all commercial fishing within the bay proper will be prohibited.

The act helps protect the livelihood of commercial fishers dependent on fishing within Glacier Bay proper by:

- authorizing continued commercial fisheries in the park's nonwilderness waters outside of Glacier Bay proper, where more than 80% of the biomass has been harvested in the past;
- allowing halibut, salmon, and Tanner crab fishers with a documented history of fishing in Glacier Bay the opportunity to continue fishing in this area for their lifetime, and allowing "grandfathered" king salmon trollers continued access to historically fished areas in the upper east and west

arms during winter openings; and

- providing financial compensation to Dungeness crab fishers who have fished for at least 6 of the last 10 years in designated wilderness waters, but must immediately cease fishing within those waters.

Although the Glacier Bay provision is a reasonable solution to a very complex and contentious issue, many details remain. The National Park Service expects to complete final regulations implementing the requirements of the act during 1999. The National Park Service and the State of Alaska will jointly develop a fisheries management plan to cooperatively manage the outer waters of the park where commercial fishing will continue.

▶ **The future view from Little Mountain** along the Natchez Trace Parkway will look much the same as it does today—free of surface mining disturbance—thanks to negotiations between the National Park Service, Mississippi Lignite, and the Mississippi Department of Environmental Quality. Proposed mining operations will be located out of the immediate view and will address other aesthetic and resource concerns: air quality, water quality and quantity, noise, and preservation of dark night skies and aquatic life.



NPS Water Resources Division, Leslie Krueger



In 1998 the National Park Service followed the same approach to managing proposed mining operations in wilderness that it developed the previous year: applying NPS regulations, basing mitigation measures or denials on resource impacts identified through the National Environmental Policy Act process, and acquiring mineral rights when feasible. Proposed mineral exploration and operation plans in wilderness within Olympic and North Cascades National Parks (Washington) have been returned to the mineral owners for further information, while an existing operation and a proposed operation in Mojave National Preserve wilderness are slated for validity examinations. The National Park Service is seeking to acquire the mineral rights to an underground talc mine in Death Valley National Park (California).

Mining

▶ MINING AND POWER GENERATION ALONG THE NACHEZ TRACE PARKWAY

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Natural resource preservation ran headlong into the electrical power demands of the 21st century at Natchez Trace Parkway (Alabama, Mississippi, and Tennessee) in 1998. This situation occurred when the Mississippi Lignite Mining Company, in partnership with Tractabel Power, proposed construction of the “Red Hills Power Project.” A combined 5,800-acre, surface lignite (low-grade coal) mine and 440-megawatt, coal-fired power plant, the proposed project would border the parkway for 5 miles, with portions extending to within 500 feet of the boundary.

Powerful state and local interests supported the Red Hills Project citing economic and employment benefits for the county. In contrast, the National Park Service raised concerns

about potential impacts to aesthetic and physical resources along the parkway, specifically natural-landscape vistas, night sky, natural soundscape, air quality, water quality and quantity (including flow patterns), and aquatic life. However, through the collaboration of the NPS Natural Resource Program Center, Southeast Regional Office, and Natchez Trace Parkway and a cooperative relationship with Mississippi Lignite and the Mississippi Department of Environmental Quality, the Park Service gained significant permanent changes to the proposed mining operations. These changes not only would protect parkway resources, but would also help avoid triggering a portion of the Mississippi State surface coal-mining law. Had it been triggered, the law would have required “joint approval” by the NPS Director and the state permitting agency for the project to be permitted—a potentially difficult situation for all parties involved. As a result of this cooperation, a large-scale mine and power plant operation will be developed with minimal impacts on the Natchez Trace Parkway.

Impacts upon aesthetic resources were mitigated through an important agreement and major monetary and logistical concessions by Mississippi Lignite to forgo the future mining

Although mining equipment may vary slightly from that depicted in this coal-mining operation in Texas, the lignite mine near Natchez Trace Parkway would be similar in size and appearance—approximately 1 1/2 miles long, 200 feet deep, and 900 feet wide.



NPS Water Resources Division, Leslie Krueger

of several planned open pits. The pits were to be located immediately east of the Jeff Busby Developed Area and Little Mountain Overlook, both popular attractions at the parkway. This area is home to one of three campgrounds in the parkway and features some of the darkest night skies in the southeastern United States.

Concerns over possible air quality impacts were addressed through an exhaustive examination of predicted pollution sources and power plant control technology. National Park Service air quality experts communicated their findings and recommendations to power plant design engineers for their consideration in increasing the effectiveness of pollution control equipment on the plant.

Negotiations between the Park Service and Mississippi Lignite brought about mitigation of several potential disturbances to water resources. The Park Service was concerned that water quality, quantity, and aquatic life could be impacted because two streams flow through and adjacent to the area of the project before reaching the parkway. Although the mining company had provided baseline data on water quality and quantity as required in their permit,

and had proposed to gather additional data during the life of the mine, both sets of information were insufficient. Negotiations resulted in an agreement that the mining company will increase its monitoring of stream water quality, install new gauging stations along streams flowing through the parkway, construct new monitoring wells to measure groundwater quality and its contribution to stream flow, and study stream biology. Mississippi Lignite will regularly report its findings to the National Park Service and if adverse impacts are discovered, it will work with the Park Service toward mitigation.

The National Park Service is pleased with the cooperation it received from Mississippi Lignite and the State of Mississippi to protect parkway resources. The interdisciplinary approach within the National Park Service among parkway and technical resource specialists also proved successful. The negotiations avoided potentially adversarial relationships among the many parties that could have lasted for years and may not have adequately protected park resources. Instead, cooperation led to an outcome that was acceptable to all.

Recreational Use

PERSONAL WATERCRAFT USE TO BE REGULATED IN THE PARKS

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Personal watercraft use in national park system units has grown dramatically during the last decade. Concerns over environmental impacts, visitor conflicts, wildlife disturbance, noise, and accidents involving these water vehicles have increased at a similar rate. On 15 September 1998 the National Park Service made public a proposed rule to manage personal watercraft use in national parks. The public and special interest groups submitted thousands of comments, which will be considered in developing the final regulation. Completion of the personal watercraft use rule is scheduled for spring 1999. Until these regulations are finalized, parks will follow an interim management policy established by the director.

Also known by the commercial names Jet Ski, Sea Doo, Waverunner, etc., personal watercraft cause significant problems in the parks. They are typically propelled by an inboard, two-cycle, internal combustion engine driving a water jet. They are usually less than 16 feet long and carry one to three people in a sitting or standing position. The engines, which use a gas-oil mixture and are generally operated at sustained high speeds, deposit significant amounts of harmful and long-lasting pollutants such as MTBE (a gasoline additive) into lakes, rivers, and coastal waters. Personal watercraft also disrupt threatened and endangered wildlife species during feeding and nesting activity, as they are able to access shallow waters because of their prop-free design. Park visitors engaged in more traditional park activities, such as hiking, camping, bird-watching, and canoeing expect solitude and natural sounds to be part of their park experience. The high-pitched whine of personal watercraft and the resulting disturbance of wildlife lead to frequent complaints to park management.

Many accidents occur when very young or inexperienced operators are allowed to use personal watercraft without proper supervision or instruction. Experienced users also cause accidents when engaged in acrobatic maneuvers such as sharp turns and wave jumping. Personal watercraft have been involved in numerous accidents resulting in serious injuries and fatalities in national parks. Conflicts with other visitors in



Glen Canyon National Recreation Area

boats and at swimming areas are very common. Currently, national park system units use state boating laws, U.S. Coast Guard regulations, and federal regulations specific to the National Park Service to manage boating activity and enforce safety restrictions. Legal requirements involving personal watercraft vary widely from state to state. Under the NPS servicewide regulation, personal watercraft use would only be allowed in a limited number of areas, primarily national recreation areas, national seashores, and national lakeshores. The proposed rule prohibits personal watercraft use in units of the national park system unless the National Park Service determines that such use is appropriate for a specific unit based on that unit's enabling legislation, resources and values, other visitor uses, and overall management objectives. The proposal incorporates and distinguishes two methods of authorizing personal watercraft use. The first method is available for a relatively small group of park units where authorization might be appropriately and successfully accomplished through locally based procedures. The second method, unit-specific rule making through the *Federal Register*, is available for all other park units where authorization is deemed appropriate.

Personal watercraft use is just one of many emerging recreational pursuits that the National Park Service must address. New technological developments and experimental designs in vessels, aircraft, all-terrain vehicles, snowmobiles, bicycles, rollerblades, climbing gear, and many other types of equipment challenge NPS management strategies and regulations.

▲ **Concern over safety, environmental impacts, conflicts with other park uses, and noise prompted the National Park Service to publish a proposed rule in 1998 to regulate the use of personal watercraft in national parks. Regulations are anticipated in spring 1999.**

Prescribed fire and hazard fuels reduction accomplishments increased 24%, from 69,481 acres in 1997 to 86,126 acres in 1998. The increase is attributable to new rules for the use of funds for these activities, growth in the number of parks with fire management plans, and enhanced availability of personnel to carry out these fire applications. This year's accomplishments are in line with projections reported to Congress, suggesting that the new funding rules will increase fire accomplishments by 25% over each of the next four years.



Public Perception

► THE POLITICS OF PRESCRIBED FIRE AT DEVILS TOWER

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A 280-acre prescribed fire burned through forest and grassland at Devils Tower National Monument (Wyoming) on 29 April 1998. Conducted by the National Park Service, the U.S. Forest Service, and state and local firefighters, this was the park's third prescribed fire since approval of the Fire Management Plan in 1993. The previous two prescribed

fires were conducted under less than ideal weather and fuel moisture conditions, accomplishing none of the targeted resource management objectives. In contrast, preliminary data indicate that the 1998 burn met all resource objectives, including reduction of the forest canopy, pole-sized trees, and dead and down fuels. Although the prescribed fire was declared "out," the controversy surrounding the burn had just started.

The spark that lit the fuse was the burn location. The local public was outraged at the blackened trees marring the primary view of Devils Tower. Articles in local and regional newspapers were highly critical of park management. Most northeast Wyoming residents believed that the park should not try to conduct ecosystem management, but should focus solely on managing for scenic values and economic concerns. Some local residents called for salvage logging of fire-blackened trees for



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◀ **Flames from the controversial 1998 prescribed fire** move up the south flank of Devils Tower, Wyoming.



Sequoia–Kings Canyon National Parks and their interagency counterparts signed a memorandum of understanding in 1998 to address the effects of smoke from prescribed natural fires on regional air quality. As the year came to a close, the partners were developing EPA-recommended sections of a smoke management plan for the application of best available control technologies to manage smoke in order to meet California state and federal health and welfare standards. The plan encompasses smoke dispersion evaluation; burn planning, administration, and authorization; public education and awareness; emission inventory and reduction techniques; economic and environmental assessment; and oversight by the State of California.

beautification purposes. Local businesses were worried that visitation would decrease, resulting in a drop in revenues. While the visiting public was curious about the burn, they understood the overall purpose of prescribed fire. However, despite concerted efforts by the National Park Service to publicize the natural role that fire plays in ecosystems, especially since the 1988 Yellowstone fires, the general public is often unable or unwilling to tolerate the effects of this powerful force of nature.

The uproar was heard all the way to the Wyoming congressional delegation, who immediately sought further information on the fire. While the park's strategy was to focus on the purpose and ecological success of the prescribed fire, the representatives were more interested in what the park would do to fix the "problem." Clearly, the park's education agenda and the representatives' emphasis on changing fire policy were incompatible. The press also added to the controversy with a few highly inaccurate articles, one of which portrayed the superintendent as an arsonist.

As resource managers certainly know, it is important to assess acceptance of prescribed fire by local communities before a burn takes place and to expand communication efforts with the public at all points in the process. The message must be kept simple by emphasizing safety and overall ecosystem health as desired outcomes. Although the prescribed fire at Devils Tower met all legal requirements for public notification, local constituents felt strongly that the park needed to be more comprehensive in contacting all nearby residents. This experience also underscores the importance of using the fire management planning process to address the visual impacts to be expected from prescribed fire. Furthermore, it points out the value of aiming educational efforts at children so that they may grow up with a different viewpoint of fire from the one symbolized by Smokey the Bear. The National Park Service should continue to enlist public support for using scientific information to manage parks. Ultimately, park managers still must do what is best for the resource.

Shaping Growth

▶ BLACKSTONE RIVER PROTECTS NATURE IN A CHANGING CULTURAL LANDSCAPE

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The national heritage area movement began chiefly as a method for protecting regional landscapes of historic significance in places where the National Park Service could not or would not be expected to own and manage land—places where people live and where their history is still unfolding. Several of the 16 designated national heritage areas, such as the Hudson River Valley and the Delaware and Lehigh Navigation Canal in Pennsylvania's coal region, commemorate areas of historic significance that are directly tied to natural resources. In the Blackstone River Valley, which was designated a national heritage corridor in 1986, the explosion in water-powered manufacturing, which signaled the beginning of the Industrial Revolution, was predicated on a river powerful enough to fuel the dozens of mills springing up along the corridor's 46-mile course. Today, as yesterday, a tension exists in this historic setting in Rhode Island and Massachusetts between the forces of change and the resource base from which change often draws.

Now in its second decade and one of the first NPS heritage areas, Blackstone River faces the great challenge

of shaping growth through an integrated resource management approach: balancing historic preservation, environmental conservation, and economic development. This new-style “park” emphasizes management and stewardship through partnerships, which can become complicated when the agendas of different partners conflict.

For the first time, in 1997 a Natural Resources Inventory and Assessment was developed for the corridor. The advisory committee, composed of many partners active in natural resource protection throughout the valley, agreed early in the assessment process that management recommendations could not relate solely to ecological functions of the landscape. As a result, protection strategies for the corridor tend to focus on actions that are likely to gain the broadest support. However, they also take into account regional impacts of growth and transportation and the area's overall conservation purpose.

A key to natural resource protection in the valley is influencing local decision making and even the thinking of the local populace. A prime example occurred in Grafton, Massachusetts, in 1998 when the Grafton Land Trust sought to protect 124 acres of hay fields, pasture, wetland, and woodland amid a much larger landscape. Miscoe Brook, constituting a significant portion of the Grafton watershed and aquifer, also runs through the property. The town had the first option to buy the land through a Massachusetts farmland protection program, but residents needed to be convinced. With help from the corridor's staff real estate specialist and a key partner in the management of the corridor, Donna Williams of the local land trust, residents voted to approve \$1.5 million to purchase the land. The town of Grafton will eventually allow a small, clustered development on a portion of the property to offset some costs, but the net result is protection of critical resources and wildlife habitat, which might not have happened without a compelling argument.

Incrementally, these small successes add up to greater protection of the cultural landscape and survival of natural systems and habitat. The challenge of working in an ever-changing environment has broad applications for traditional national parks, too, as they grapple with growth and infrastructure along their boundaries.

The view from Lookout Rock in Northridge, Massachusetts, is representative of the scenic character of portions of the Blackstone River Valley National Heritage Corridor. Numerous partners, including the National Park Service, strive to manage area growth in ways compatible with historic and natural resource conservation. The entire scene from this spot is protected thanks to the efforts of the Massachusetts Department of Environmental Management.





Big Bend National Park, PRIMENet amphibian crew

◀ **Couch's spadefoot toad** is one of the amphibian species being studied in Big Bend National Park (Texas) as part of the EPA-NPS intensive ecosystem monitoring activities. Three parks conducted similar research during 1998 aimed at developing methods for identifying amphibian population trends.

Indicator Species

► AGENCIES SEARCH FOR REASONS FOR AMPHIBIAN DECLINE GPRA

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When deformed frogs make the front page of the *Washington Post* (9/30/96), we know that amphibians have captured the interest and concern of the public. Since 1995, when reports of frogs and toads with missing limbs and extra body parts started coming in, federal agencies such as the Department of the Interior and the Environmental Protection Agency (EPA) have launched efforts to find out the extent and causes of amphibian deformities and population declines. Thus, 1998 became the unofficial "year of the amphibian," with both the NPS Inventory and Monitoring Program and the NPS-EPA Park Research and Intensive Monitoring of Ecosystems Network (PRIMENet) initiating activities to better characterize amphibian populations in parks.

During the year, the Inventory and Monitoring Program started inventories of amphibians and reptiles in 13 parks, and it plans to fund inventories in an additional 13 parks out of the FY 1999 Inventory and Monitoring Program budget. The participating parks' natural resource staffs have joined with university and federal agency scientists to devise plans for carrying out these biological inventories and to come up with preliminary strategies for monitoring populations through time. Only with long-term data sets will the parks be able to determine changes in amphibian numbers that are caused by either natural factors or human-related stresses, such as climate change, habitat

alteration, exotic species, UV radiation, and contaminants.

PRIMENet had already funded development of amphibian monitoring methods in Big Bend and Shenandoah National Parks, with interim results presented by U.S. Geological Survey

"Only with long-term data sets will the parks be able to determine changes in amphibian numbers that are caused by either natural factors or human-related stresses ..."

collaborators at the PRIMENet annual meeting held in November 1998. This amphibian program was expanded in 1998 with the addition of \$500,000 of EPA research funds to be spent in a number of PRIMENet parks in 1999. (PRIMENet, formerly called the Demonstration Intensive Site Project [DISPro], changed its name to reflect that the program has moved beyond the concept of a "demonstration project" and is now a functioning set of index sites.)

The National Park Service is looking forward to the success of an FY 2000 budget initiative for the Department of the Interior to sponsor amphibian inventory, monitoring, and research on public lands. We anticipate that departmental scientists and resource managers will launch significant efforts to understand the status and trends in frog, toad, and salamander populations should this \$8.1 million-per-year initiative be approved.



The cooperative agreement between the Environmental Protection Agency and the National Park Service was extended three years in 1998 to provide for the continued design and implementation of PRIMENet (formerly DISPro). During the year, the Park Service focused on completing installation of equipment needed for monitoring wet and dry deposition, ozone, and visibility in 14 parks. The EPA and NPS jointly operate the UV monitoring network in those parks. Additionally, eight research projects were started, which include work on nitrogen deposition, UV radiation, climate, and ozone-stressor effects on natural resources.